

IN THE CLAIMS:

Claims 1, 9, and 20 have been amended. Claims 5 - 8, 12 - 16, 18 - 19, 22 - 26, and 28 - 29 have been cancelled. Claims 30 - 41 have been added.

1. (currently amended) A system for host-based QoS provisioning, comprising:

a host system connecting to a network, said host system initiating a data flow associated with an application running in the host system, said data flow being sent to said network; and

a centralized QoS provisioning mechanism for enforcing flow control on said data flow of said application originated from said host system by establishing a QoS provisioning policy for said application, wherein said centralized QoS provisioning mechanism is coupled to said host system, and said flow control is enforced on said data flow of said application using a filter and a flow specification constructed for said application based on the QoS provisioning policy, the application being one of a Voice over IP application or a video conferencing application.

2. (original) The system according to claim 1, wherein said host system comprises:

a server; and

at least one client capable of communicating with said server.

3. (previously presented) The system according to claim 2, wherein said centralized QoS provisioning mechanism includes:

at least one network traffic control agent that is responsible for enforcing

said flow control, each of said at least one network traffic control agent running on one of said at least one client, imposing said flow control on said data flow initiated by said application running on said one of said at least one client;

a network traffic control administrator, capable of running on said server, for conducting centralized QoS provisioning by enforcing said flow control via said at least one network traffic control agent; and

a policy server for storing said QoS provisioning policy.

4. (previously presented) The system according to claim 3, further including:

a console for performing user-level QoS provisioning; and

a network performance statistics collector for collecting network performance related statistics from said host system, said network performance statistics including per flow statistics with respect to said application and local network performance statistics which are utilized by said network traffic control administrator to revise the QoS provisioning policy for said application.

Claims 5 - 8 (cancelled).

9. (currently amended) A method for host-based QoS provisioning, comprising:

performing centralized QoS provisioning on a data flow associated with for an application running in a host system by generating a QoS provisioning policy with respect to said application;

constructing a filter and a flow specification according to said QoS provisioning policy, said filter and said flow specification being used to enforce

flow control on said data flow of said application, wherein said filter and said flow specification are constructed adaptively based on the QoS provisioning policy updated through application-based feedback-driven adaptation; and

sending said filter and said flow specification to a network traffic control agent~~[[;]]~~, the application being one of a Voice over IP application or a video conferencing application.

~~receiving, by said network traffic control agent, said filter and said flow specification;~~

~~filtering, by said network traffic control agent, said application using said filter; and~~

~~enforcing said flow control, based on said flow specification, on said data flow of said application.~~

10. (previously presented) The method according to claim 9, further including:

generating statistics relevant to performance of said data flow and said host system;

generating an updated QoS provisioning policy with respect to said application based on said statistics;

constructing an updated flow specification for said application according to said updated QoS provisioning policy; and

sending said updated flow specification to said network traffic control agent to enforce flow control on said data flow of said application.

11. (original) The method according to claim 10, wherein said statistics includes at least one of:

per-flow usage statistics derived based on per flow information collected by at least one network traffic control agent; and

local network usage statistics derived based on network performance statistics collected by a network performance statistics collector.

Claims 12 - 19 (cancelled).

20. (currently amended) A computer-readable medium encoded with a program for host-based QoS provisioning, said program which when executed causes a computer to:

perform centralized QoS provisioning on a data flow associated with ~~for~~ an application running in a host system by generating a QoS provisioning policy with respect to said application;

construct a filter and a flow specification according to said QoS provisioning policy, said filter and said flow specification being used to enforce flow control on said data flow of said application; and

send said filter and said flow specification to a network traffic control agent, the application being one of a Voice over IP application or a video conferencing application.

21. (previously presented) The medium according to claim 20, said program, which when executed causes the computer to:

generate statistics relevant to performance of said host system;

generate an updated QoS provisioning policy with respect to said

application based on said statistics;

construct an updated flow specification for said application according to said updated QoS provisioning policy; and

send said updated flow specification to said network traffic control agent to enforce flow control on said data flow of said application.

Claims 22 - 29 (cancelled).

30. (new) A Quality of Service (QoS) provisioning policy updating unit, comprising:

a manual user-driven updating unit to receive update measures from an administrator where the update measures specify how Quality of Service policies are to be updated and to transmit an manually updated QoS policy;

an automatic feedback-driven adaptation unit to receive both per flow usage statistics for an application and local network usage statistics, to determine adaptation measures based on both the per flow usage statistics and the local network usage statistics, to revise an existing QoS policy based on the adaptation measures to create an automatically updated QoS policy, and to transmit the automatically updated QoS policy; and

a flow control instruction unit to receive the manually updated QoS policy and the automatically updated QoS policy, to generate an updated flow specification for the application, and to transmit the updated flow specification to a network traffic agent.

31. (new) The provisioning unit of claim 30, wherein the manual user-driven updating unit also transmits the manually updated QoS policy to a policy

server and the automatic feedback driven adaptation unit also transmits the automatically updated QoS policy to the policy server.

32. (new) A method of Quality of Service (QoS) provisioning, comprising:
receive update measures from an administrator, where the update measures specify how QoS policies are to be updated;
transmit a manually updated Qos policy;
receive both per flow usage statistics for an application and local network statistics;
determine adaptation measures based on both the per flow usage statistics and the local network usage statistics;
revise an existing QoS policy based on the adaptation measures to create an automatically updated QoS policy;
transmit the automatically updated QoS policy;
receive the manually updated QoS policy and the automatically updated QoS policy;
generate an updated flow specification for the application; and
transmit the updated flow specification to a network traffic agent.

33. (new) The method of claim 32, wherein the manual-user driven updating unit also transmits the manually updated QoS policy to a policy server and the automatic feedback driven adaptation unit also transmits the automatically updated QoS policy to the policy server.

34. (new) A computer-readable medium encoded with a program for host-based Quality of Service (QoS) provisioning, said program which when

executed causes a computer to:

receive a manually updated QoS policy from a manual user-driver updating unit;

receive a automatically updated QoS policy for an application from an automatic feedback-driven adaptation unit where the automatically updated QoS policy is based on both per flow usage statistics for the application and local network usage statistics;

generate an updated flow specification for the application based on the manually updated QoS policy and the automatically updated QoS policy; and
transmit the updated flow specification to a network traffic agent.

35. (new) The medium of claim 34, wherein the manually updated QoS policy and the automatically updated QoS policy are received simultaneously.

36. (new) A Quality of Service (QoS) provisioning policy updating unit, comprising:

a manual user-driven updating unit to receive update measures from an administrator where the update measures specify how Quality of Service policies are to be updated and to transmit an manually updated QoS policy which is generated based on the update measures;

an automatic feedback-driven adaptation unit to receive both first per flow usage statistics for an application and first local network usage statistics during a first cycle time, to determine first adaptation measures for the application based on both the first per flow usage statistics and the first local network usage statistics for the first cycle time, to receive both second per flow usage statistics

for the application and second local network usage statistics during a second cycle time, to determine second adaptation measures based on both the second per flow usage statistics and the second local network usage statistics, to modify an existing automatic QoS policy based on the first adaptation measures and the second adaptation measures to create an automatically updated QoS policy, and to transmit the automatically updated QoS policy; and

a flow control instruction unit to receive the manually updated QoS policy and the automatically updated QoS policy, to generate an updated flow specification for the application, and to transmit the updated flow specification to a network traffic agent, wherein the manual user-driven updating unit also transmit the manually updated QoS policy to a policy server and the automatic feedback driven adaptation unit also transmits the automatically updated QoS policy to the policy server.

37. (new) The provisioning unit of claim 36, wherein the first cycle time is 5 seconds and the second cycle time is 60 seconds.

38. (new) A method of Quality of Service (QoS) provisioning, comprising:
receive update measures from an administrator where the update measures specify how QoS policies are to be updated;

transmit a manually updated QoS policy which is generated based on the updated measures;

receive both first per flow usage statistics for an application and first local network usage statistics during a first cycle time;

determine first adaptation measures for the application based on both the

first per flow usage statistics and the first local network usage statistics for the first cycle time;

receive both second per flow usage statistics for the application and second local network usage statistics;

determine second adaptation measures based on both the second per flow usage statistics and the second local network usage statistics;

modify an existing automatic QoS policy based on the first adaptation measures and the second adaptation measures to create an automatically updated QoS policy;

transmit the automatically updated QoS policy;

receive both the manually updated QoS policy and the automatically updated QoS policy;

generate an updated flow specification for the application; and

transmit the updated flow specification to a network traffic agent.

39. (new) The method of claim 38, wherein the first cycle time is five seconds and the second cycle time is 60 seconds.

40. (new) A computer-readable medium encoded with a program for host-based Quality of Service (QoS) provisioning, said program which when executed causes a computer to:

receive a manually updated QoS policy based on update measures that specify how QoS policies are to be updated;

receive an automatically updated QoS policy based on first adaptation measures for an application and second adaptation measures for the application,

the first adaptation measures for the application being based on both the per flow usage statistics and the first local network usage statistics for a first cycle time and the second adaptation measures for the application being based on both the second per flow usage statistics and the second local network usage statistics during a second cycle time;

generate an updated flow specification for the application based on the manually updated QoS policy and the automatically updated QoS policy; and transmit the updated flow specification to a network traffic agent.

41. (new) The medium of claim 40, wherein the first cycle time is five seconds and the second cycle time is sixty seconds.